

State Broadband Mapping and Mapping Data Overview

Objectives

- To introduce the State Broadband Initiative: grant, data, mapping tool, and resources
- To communicate how we see that you and others across the State can help us improve the map
- To hear your feedback and perspectives in order to improve the value of the map for New Jersey

Agenda

- Grant Background
- Overview of State Broadband Map Data
 - Context, Content, Collection, Validation, Correction, Key Needs
- Tour of the State Broadband Mapping Tool
 - Navigation Examples
- Connecting with ConnectingNJ
- Q&A

Grant Background



Grant Background

- A result of a federal grant funded by ARRA* and regulated by NTIA** for the purpose of improving broadband adoption as a competitive advantage in national, state and local economies
- A 5-year data collection and mapping program, with federal funds ending December 2014
- Includes publishing data online semiannually at both a state level and national level, showing availability and speed of broadband access across NJ
- Grant also includes:
 - Rutgers household, community, and state-level research
 - NJ OIT outreach: increasing awareness of benefits, gaining insights into broadband availability and adoption, and providing technical assistance

*ARRA: American Recovery and Reinvestment Act

**NTIA: National Telecommunications and Information Administration

State Broadband Initiative Data Highlights



SBI Data Highlights - Context

- Data is collected / validated semi-annually and posted geographically in April and October on 2 websites:
- The New Jersey Broadband Map
 - http://njgin.state.nj.us/oit/gis/OIT_BroadbandMapping
 - Only displays broadband information for the state of NJ
 - Displays a subset of the cross-state standard data displayed on the National Broadband Map
 - May display supporting data unique to NJ that is not displayed on the national map
 - Provides geographical browsing
 - Can be updated more frequently than the national map
- The National Broadband Map
 - <http://www.broadbandmap.gov>
 - Displays broadband information for all states in the U.S.
 - Displays a consistent data set across all states
 - Provides geographical browsing as well as data reporting and analysis tools
 - Is only updated twice a year

SBI Data Highlights – Context (cont'd)



- The two primary broadband-related datasets displayed geographically on the State of New Jersey broadband map are (1) broadband provider service **availability** and (2) community anchor institute (CAI) broadband **subscription**.
- CAIs may include libraries, K-12 schools, higher education, health care entities, public safety entities, and government and non-government organizations that serve and anchor communities.
- Note that although Connecting NJ collects CAI data for public safety and government entities, that data is not displayed on the New Jersey map at this time. It is however displayed on the National Broadband Map.
- Likewise, CAI broadband information is only displayed on the national map at this time.



SBI Data Highlights - Content

- Broadband Provider Service Availability
 - Includes data from approximately 30 providers
 - Basic data elements: Provider Name, Delivery Technology*, Maximum Advertised Upload/Download Speeds
 - The NTIA's definition of available broadband coverage is that it could be delivered by a service provider within 7 – 10 business days.
 - The geographic granularity for availability is Census Blocks (if the CB is less than 2 square miles) or road segments (only for CBs greater than 2 square miles).
 - Hence, the map is accurate provided that the service provider could provide the stated type and speeds of broadband within the time interval to at least one address in the CB or road segment.

*For example: Cable Modem, Fiber, Satellite, DSL, Wireless, etc.

SBI Data Highlights - Content (cont'd)



- Community Anchor Institute (CAI) Broadband Usage
 - Includes approximately 15,000 CAIs
 - Basic data elements: Organization Name, Address, CAI Category, Broadband Service Provider Name, Delivery Technology, Site Report of Upload/Download Speed
 - A variety of means are used to collect CAI data, involving numerous challenges.
 - CAIs play a critical role in anchoring the community by contributing to economic development, job creation, education, health care, public safety, and access to local, state, and federal government services.
 - Mapping CAI broadband usage data against provider service data is one way to identify areas in the state where broadband “supply” is potentially not sufficient to support the broadband “demand” necessary for supporting the critical role of CAIs.

SBI Data Highlights - Content (cont'd)



- Community Anchor Institute (CAI) Broadband Usage (cont'd)
 - 3 key CAI metrics:
 1. Actual number of CAI organizations in NJ
 2. Validated CAI records we have with location information
 3. Validated CAI records we have with both location and broadband information
 - Below is the current snapshot of CAI data collected to date:

CAI Data Summary (as of April 2013)	Total # of Locations Identified	Total # of records with broadband data
CAI Category		
School K-12	3763	2466
Libraries	474	171
Medical/Healthcare	9265	5
Public Safety	341	80
University	160	40
Other – State and Local Government	1692	1692
Other – Non Government	8	8



SBI Data Highlights - Collection

- **Broadband service provider data** is obtained directly from the organization providing broadband service.
- Known providers are solicited for a refreshed data set in July and January each year.
- Additionally, Connecting NJ continually performs environmental scans to identify new providers, renamed providers, mergers/acquisitions, and those providers leaving New Jersey.
- To-date, most service providers have been responsive to Connecting NJ's bi-annual request for updated data.

SBI Data Highlights – Collection (cont'd)



- **CAI data** is obtained from a variety of sources, such as public information available in the internet, the CAI themselves, organizations who serve CAIs, and government entities.
- CAI data is formally requested and gathered bi-annually on the same schedule as service provider data; however, in actuality it is refreshed on various intervals, depending on the refresh frequency of the source of the data.
- Collecting data on community anchor institutions has been a challenge due to the lack of existing broadband data sources and a lack of participation to provide the data.
- As additional information and data is provided, the New Jersey Broadband map will become more dynamic and interactive.



SBI Data Highlights - Validation

- Internal “Within the Data Set” Checks; For Example:
 - ✓ Data elements for uniqueness and validity – census block IDs, TigerLine street segments, speed codes, etc.
 - ✓ Visual inspection of maps
 - ✓ Basic cross-table consistency checks
 - ✓ Doughnut hole study for geographic consistency of wireline data
- External “Against another Data Set” Checks; For Example:
 - ✓ Provider name and FRN against FCC data
 - ✓ Coverage area against NJ state geometry
 - ✓ Technology and speed consistency vs provider capability, technical specifications from standards
 - ✓ Address verification via geo-coding
 - ✓ Resources for placename data verification: NJ placenames data NJ GIN, Federal gov’t placename information, and US postal service data
 - ✓ Cable coverage data against cable franchise municipality data
 - ✓ Analysis of 3rd party data comparisons provided by NTIA / FCC
 - ✓ Speed test data
 - ✓ Validation of CAI data against provider data
 - ✓ Environmental scan for new providers, renamed providers, M&A, and those leaving NJ



SBI Data Highlights – Validation (cont'd)

- Community Anchor Institute (CAI) Data Confidence Estimation
 - Based on the Source of Broadband Data
 - ✓ Data received directly from providers of broadband service to the CAIs is intrinsically of higher quality as the providers accurately track and manage the broadband service which they deliver.
 - ✓ Data received as a result of surveys is inherently less accurate.
 - Based on the Currency of Broadband Data
 - ✓ The older the data, the less confidence we have in its accuracy (and vice versa)
 - Based on the Results of Internal and External Validation Checks
- ★ • Reports of discrepancies from communities and organizations
 - Connecting NJ encourages users of the map to report any suspected data inaccuracy via the Connecting NJ web site (<http://connectingnj.state.nj.us/it/connectingnj/>) “Contact Us” form.



SBI Data Highlights – Validation (cont'd)

- Speed test results via Connecting NJ's Speed Test tool
 - Checks for experienced upload and download broadband speeds at a specific time / location and over specific technology.
 - Speed results can vary and may not present a completely accurate representation due to various factors, such as network congestions, time of day, end-user's hardware, capabilities of a router, etc.
 - Data acquired over time provides an understanding of the typical Internet speeds users experience in comparison to the speeds advertised or reported by the broadband service providers by service area and technology.
 - The Connecting NJ Speed Test tool can be access via the Connecting NJ web site (<http://connectingnj.state.nj.us/it/connectingnj/>).



SBI Data Highlights – Corrections

- Reports of data inaccuracies are first analyzed to determine the root cause of the gap between what is presented on the map and what is experienced/expected by residents or users of the map.
- It is important to determine whether the understanding of “true service” is in alignment with NTIA’s definition of service availability, which is the service availability depicted on the map.
- If Connecting NJ determines there is a data inaccuracy, it will report its analysis back to the organization of origin, requesting the inaccuracies are explained or corrected; preferably within the source data or process.
- Corrections are reflected in the next semi-annual submission to NTIA, for refresh on both the national as well as the NJ broadband map.
- Depending on the impact and severity of the data issue, the data on the NJ broadband map may be corrected before the next bi-annual submission.



SBI Data Highlights – Key Needs

- Targeting the Broadband Adoption Gaps
 - Identifying the underserved
 - Determining impact of non-adoption and barriers to adoption
 - Identifying resources and partners in order to support efforts for providing assistance
- Improving the Quality of the SBI Map Data and Using it to Provide Value for the State
 - Increasing quantity and quality of CAI data
 - Leveraging the NJ Speed Test to “check/balance” provider data
 - Supporting efforts to identify, validate, and correct data inaccuracies
- Supporting a Statewide Broadband Advisory Working Group

Tour of State Broadband Mapping Tool

Home Page

New Jersey SBI Data Mapping Tool

http://njgin.state.nj.us/oit/gis/OIT_BroadbandMapping/

The screenshot displays the 'Connecting NJ' website interface for the Broadband Mapping tool. The header features the 'CONNECTING NJ' logo and navigation links for 'State of New Jersey', 'ConnectingNJ', and 'Broadband USA'. Below this is a secondary navigation bar with links for 'Home', 'Legend/Layer List', 'Find a Location', 'Map', and 'FAQ & Help'. The main content area is divided into two columns. The left column contains a 'Getting Started' section with three paragraphs explaining the map's purpose and funding, followed by a 'Last Updated' section stating the information was last updated in October 2012. The right column features a map of New Jersey with an information popup window titled 'Connecting NJ - Broadband Mapping'. The popup contains the 'CONNECTING NJ' logo, a detailed paragraph about the Broadband Mapping Program, and a 'Continue' button. The map background shows the state of New Jersey with labels for 'Maryland', 'Washington DC', and 'Delaware'.

CONNECTING NJ

State of New Jersey ConnectingNJ Broadband USA

Home Legend/Layer List Find a Location Map FAQ & Help

Getting Started

To begin realizing the benefits of the initial phase of data collection, NJ OIT created a Broadband Map with data from 30 Broadband providers and approximately 15,000 community anchor institutions, including educational institutions, libraries, healthcare, state and local government within the State.

The purpose of the Broadband Map is to support efforts to expand broadband access and provide businesses and consumers with the relevant information they need to make decisions related to their high speed internet options.

The State of New Jersey's Broadband Map was developed with the funding from the State Broadband Initiative and is refreshed and updated every six months.

For more details on the Broadband Mapping Program or guidance in using the application, please click the FAQ & Help tab.

Last Updated

The Broadband information in this page was last updated October, 2012

Connecting NJ - Broadband Mapping

CONNECTING NJ

Broadband is a growing service within the State of New Jersey, yet despite that fact, the State has never undertaken an effort to map broadband availability utilization within the State. New Jersey was awarded funding by the National Telecommunications and Information Administration's (NTIA) State Broadband Data and Development Grant Program (Broadband Mapping Program), the State has the means to capture where broadband is available and most importantly determine the utilization (current demand) capacity and future demand for broadband statewide.

Continue

Maryland Washington DC Delaware

Links

State of New Jersey

ConnectingNJ

Broadband USA



<http://www.state.nj.us/>



<http://connectingnj.state.nj.us/>

<http://www2.ntia.doc.gov/>

Tabs

Home

Legend/Layer List

Find a Location

Map

FAQ & Help

Home – Returns user to the main page “Getting Started” and “Last Updated” pane

Legend / Layer List – Brings user to the “Layer List”, “Community Anchor Institutions” and “Legend” keys denoting the data to view

Find a Location – Takes user to a specific address, county or municipality if known prior to search

Map – Displays the Broadband Map details selected in the “Legend / Layer List”

FAQ & Help – Navigation assistance and information how to get the most of the tool for your personal or business needs

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
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Legend/Layer List

Layer List

- ☒ Provider Count 
- ☐ Maximum Download Speed 
- ☐ Maximum Upload Speed 
- ☐ Cable 
- ☐ Copper 
- ☐ DXL 
- ☐ Fiber 
- ☐ Terrestrial Fixed Wireless 
- ☐ Terrestrial Mobile Wireless 
- ☐ Satellite 






Community Anchor Institutions

- ☐ Schools - K through 12
- ☐ Libraries
- ☐ Medical/Healthcare
- ☐ University, College, or Post-Secondary Institution

Legend

Broadband Information

Provider Count

-  1 Provider
-  2 Providers
-  3 Providers
-  4 Providers
-  5 or More Providers

Find a Location

Find by Address

Address of Interest:

Find Address

Choose County

County:

Municipality:

Map



FAQ & Help

Getting Results

There are many ways to get information regarding the wired broadband coverage for a specific area in the application. Users can:

- Enter an address
- Choose a County and Municipality from drop down lists
- Click on the map

Depending on the method used to select a location, different levels of information are presented. The '**Find a Location**' tab returns specific information about service providers for a location that is defined by either clicking on the map or entering an address.

Navigating

Double-click on the map to zoom in, and drag to pan. Hold down the shift key and drag to zoom to a particular area.

Map Uses

With a comprehensive and continually updated map, the State can continue building the value of the New Jersey Broadband Map, so it can be used as an effective tool for state policy makers, businesses and citizens to:

- Identify pockets of unmet demand or need
- Help policy makers identify where the unmet needs are so they can determine how best to fulfill them
- Use the map as a tool to market NJ and support decisions for businesses looking to relocate
- Identify where existing technology infrastructures can be leveraged
- Help providers and customers find each other

To-date, most service providers have been responsive. However, collecting data on community anchor institutions has been a challenge due to the lack of existing broadband data sources and a lack of participation to provide the data. As additional information and data is provided, the New Jersey Broadband map will become more dynamic and interactive.

How Other States and Groups have Gained Value from the Broadband Map

Utah, a mid-sized company in the health care field was losing time and money due to frequent broadband outages at a rural office. The company considered moving these jobs to their headquarters in an urban location. However the company was able to use the National Broadband Map to identify other broadband providers in this rural county – and retain hundreds of jobs in this rural area.

Kanasas, The Kansas Department of Commerce and a customer service company used the map to identify communities with the broadband necessary to support home-based workers. As a result, the customer service company hired about 200 workers in the state, providing much-needed jobs in small towns that may have otherwise been overlooked for this work.

South Dakota, An online training company used the map to identify towns in South Dakota where they can locate new offices, which will support more than 100 professional jobs in these rural locations.

Academic Research, The map has supported academic research at more than 1,000 colleges and universities and been used by more than 500 city and county governments.

Navigation Examples

Provider Count

How many providers service my area?

Home **Legend/Layer List** Find a Location Map FAQ & Help

Layer List

- ☒ Provider Count
- ☐ Maximum Download Speed
- ☐ Maximum Upload Speed
- ☐ Cable
- ☐ Copper
- ☐ DXL
- ☐ Fiber
- ☐ Terrestrial Fixed Wireless
- ☐ Terrestrial Mobile Wireless
- ☐ Satellite

Community Anchor Institutions

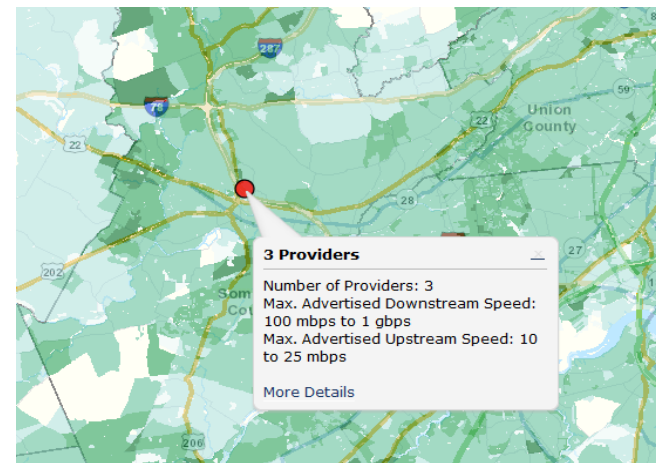
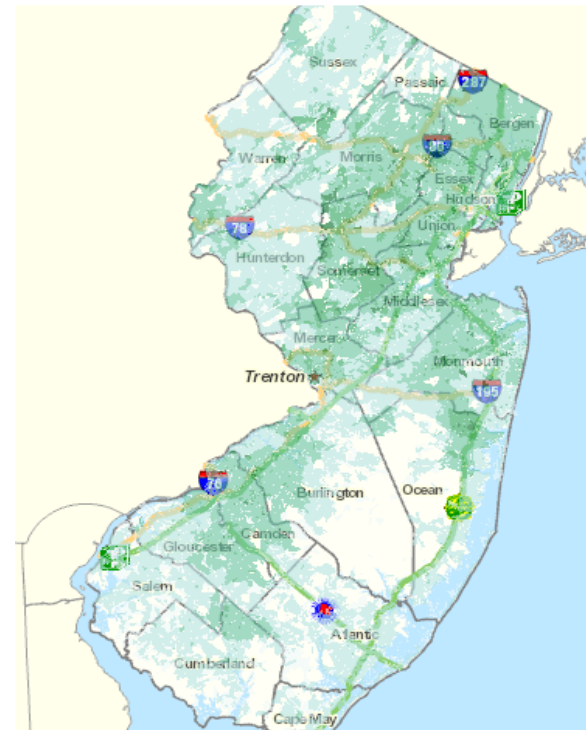
- ☐ Schools - K through 12
- ☐ Libraries
- ☐ Medical/Healthcare
- ☐ University, College, or Post-Secondary Institution

Legend

Broadband Information

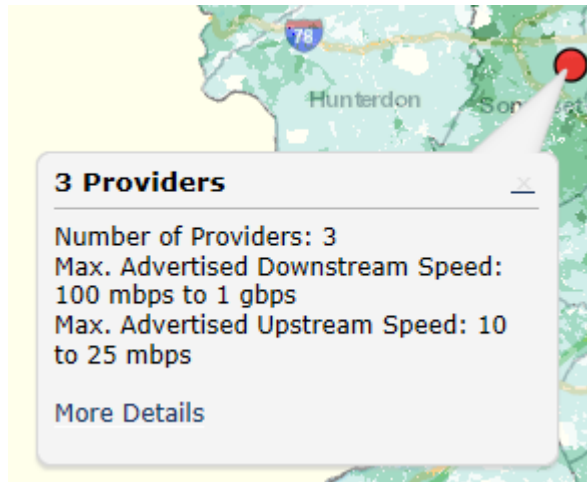
Provider Count

- 1 Provider
- 2 Providers
- 3 Providers
- 4 Providers
- 5 or More Providers



Provider Count – “More Details”

What are statistics on
the particular area I’m
analyzing?

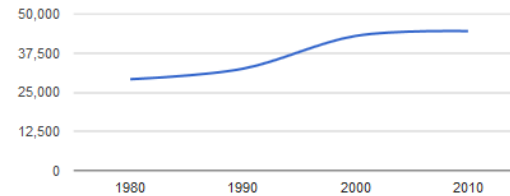


Broadband Coverage Information

Municipal Information

Bridgewater Township, Somerset County
 Square Miles: 32.34

Population (1980 to 2010)



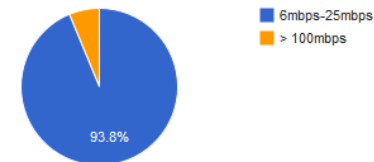
Provider Coverage

Area in square miles



Upload Speed Coverage

Area in square miles



Wired Provider Options

Provider	Wired Broadband Technology
CABLEVISION	Cable Modem - DOCSIS 3.0
Covad Communications Company	Asymmetric xDSL
Covad Communications Company	Symmetric xDSL
Covad Communications Company	Other Copper Wireline
Verizon	Asymmetric xDSL

Provider Count – Community Anchor Institutions

Where are the schools, libraries, and medical facilities in relation to my point of interest?

Community Anchor Institutions

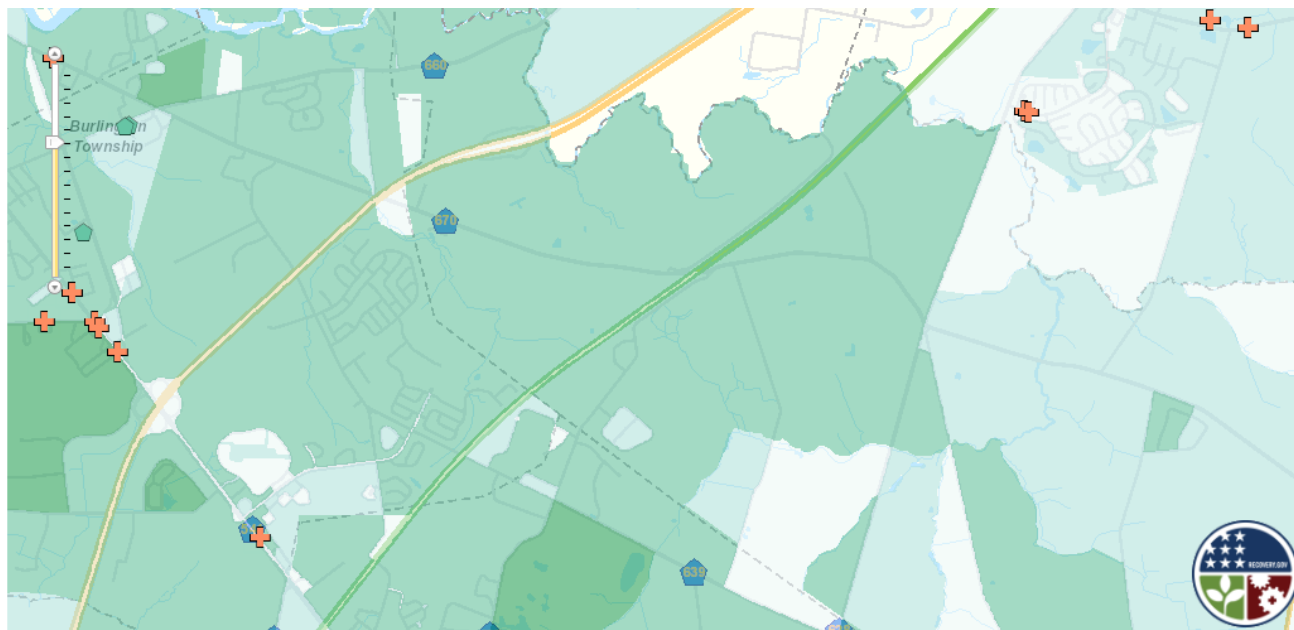
- ☒ Schools - K through 12
- ☒ Libraries
- ☒ Medical/Healthcare
- ☒ University, College, or Post-Secondary Institution

Legend

Community Anchor Institutions

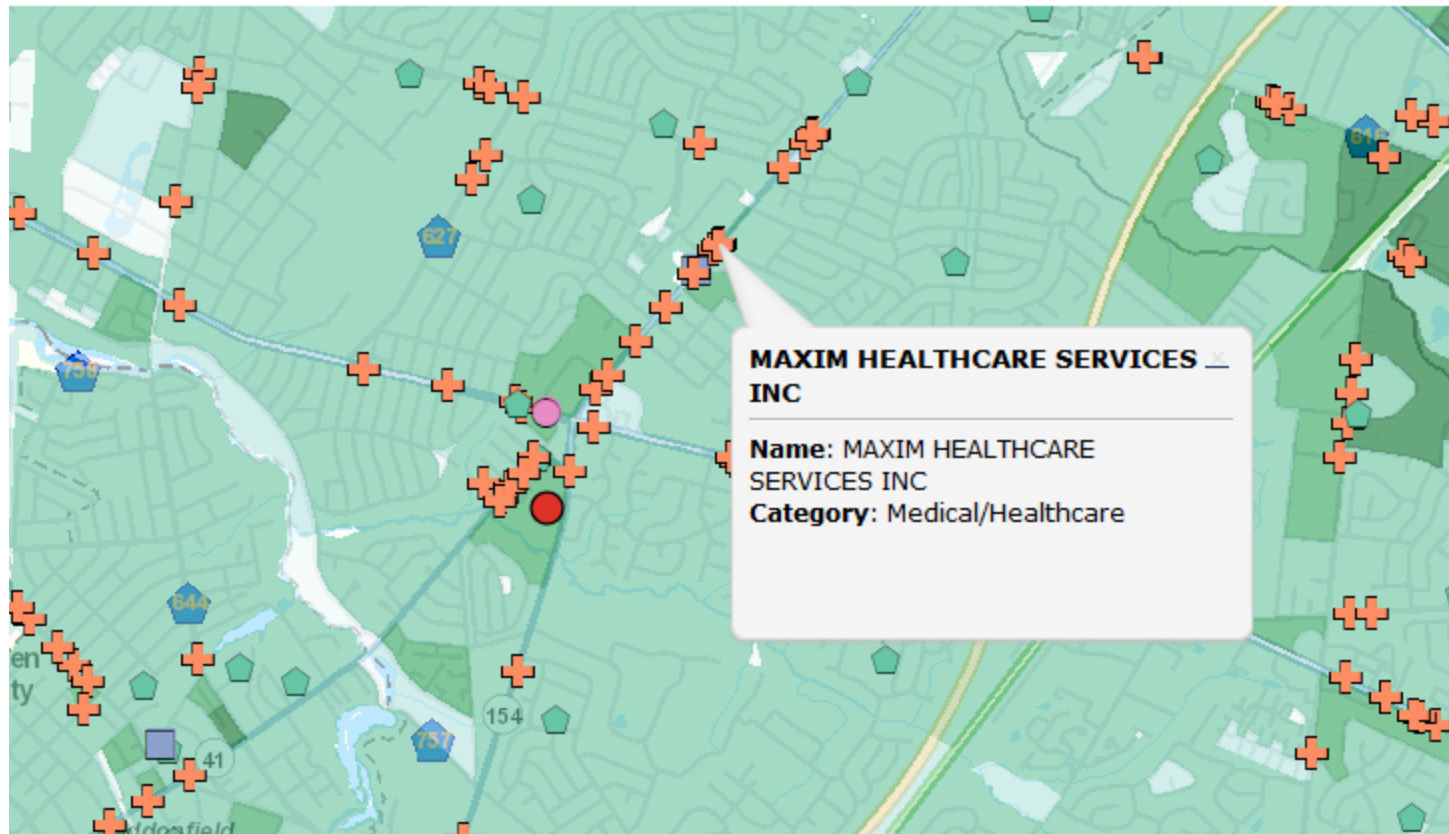
-  School - K through 12
-  Library
-  Medical/healthcare
-  University, college, other post-secondary

- A user must zoom 5 Levels deep via the zoom bar to have this option available to select CAIs menu
- Current CAI categories available are School (K–12), Libraries, Medical/Healthcare, and University, College, or Post-Secondary Institution (each marked separate by symbol)



Provider Count – Community Anchor Institutions (cont.)

Click on a specific CAI and retrieve name of institution and its category (Libraries, Schools, etc)



Find a Location

I want to focus on a specific address or county/township, can I jump directly to it?

Find by Address

Address of Interest:

Find Address

Choose County

County: ATLANTIC

Municipality:



Home Legend/Layer List Find a Location

Find by Address

Address of Interest:

Find Address

Choose County

County: ATLANTIC

Municipality: Atlantic City





Connect with ConnectingNJ

connectingnj.state.nj.us



Q&A



Thank you!